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EXAMINER	
NGUYEN, KHAI N	
ART UNIT	**PAPER NUMBER**
2614	

NOTIFICATION DATE	DELIVERY MODE
06/09/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/817,575	LAMBERTON ET AL.	
	Examiner	Art Unit	
	KHAI N. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 22, 2010 has been entered.

Response to Amendment

2. Applicants' amendment filed on March 22, 2010 has been entered. Claims **1**, **22**, and 25 have been emended. No claims have been canceled. No claims have been added. Claims 1-29 are still pending in this application, with claims **1** and **22** being independent.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

4. Claims 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roque et al. (U.S. Publication 2002/0186687 A1 hereinafter "Roque") in view of Suzuki (U.S. Patent Publication 2002/0156925 A1), in view of Thompson et al. (U.S.

Publication 2002/0018462 A1 hereinafter “Thompson”), and in view of Venkatesh et al. (U.S. Pub. No. 2204/0240486 A1 hereinafter “Venkatesh”).

Regarding claims 1-3, Roque teaches a method of controlling a local process that forms part of a first processing entity (Fig. 3, 121-122 Application Server Process “ASP”), said first processing entity maintaining a plurality of associations with a plurality of remote processes in a second processing entity (Fig. 3, 131-132 Signaling Gateway Process “SGP”), said method comprising the steps of:

- receiving at a computer executing the local process a failure message from a remote process (Fig. 6, 30-2 SGPIA/SGPDOWN) indicating a fault affecting an association linking the local process (Fig. 6, ASP-X) with that remote process (Figs. 6-12, paragraphs [0335]-[0336] hereinafter “par”, i.e., remote process "SGP-A' sends an SGPDOWN "failure" message), wherein the plurality of associations comprise transport connections between respective local processes and remote processes (Figs. 1-4, paragraphs [0056] and [0058], i.e., association established between an ASP and an SGP with the SGP(s)’s transport address(es), and par [0071], i.e., an ASP and an SGP that has a bi-directional transport connection established between them for the exchanging of messages, and par [0126], i.e., transport connections using a transport protocol);

- queuing, at the computer executing the local process, data messages destined for that remote process (Figs. 6-12, par [0385], i.e., stop signaling traffic messages);

- verifying that during a timer period that data messages previously sent using the fault-affected association have been received by the remote process (paragraphs [0079]-[0081], i.e., transport protocol such as SCTP, TCP or UDP are **inherent** data verification during a timer period, for example, TCP using handshaking messages such as Acknowledgement (ACK) message to verify that data have been received properly and the ACK message must be received by the sender within a timer period (i.e., T1 timer programmable in the protocol), otherwise re-transmission of the data is needed, this feature in TCP/IP protocol is old and well known in the art, also see paragraph [0096], i.e., the protocol control means for the reception of acknowledgement messages about the state and traffic messages **previously sent**);

- controlling the transmission of an acknowledgement (Figs. 6-12, SGPIA-ACK/SGPDOWN-ACK) of the failure message at the computer executing the local process (Fig. 10, par [0372], i.e., a “communication down indication") so that the data messages pending on the association are ensured received at that remote process via an alternate path, based on said verifying within the timer period (Figs. 6-12, par [0352], i.e., uses an alternative SGP that can serve the SG(s), and par [0355], see paragraphs [0079]-[0081], and [0096] for verifying within a timer period); and

- initiating a traffic diversion to set up the alternate path between said first processing entity and said second processing entity for queued data messages (Figs. 6-12 “SGPIA or SGPDOWN is received”, par [0350]-[0354], i.e., either use an alternate SGP that is active or start an activation procedure), with said initiating comprising testing of a data

type value of the queued data messages (Fig. 5, paragraphs [0164]-[0168], i.e., the value of Traffic Handling Mode (THM) indicating one value type among many).

Roque teaches that when the local process received a failure message from the remote process then an alternative path is used for the data messages pending on associations (Figs. 1-12, paragraphs [0065]-[0072]). In addition, the technique to use an alternative path when a failure occurred is old and well known in the art, for example, to achieve a maximum availability of a communication system the system designer always build-in the redundancy/back-up/fault tolerant alternate path for a failed communication path.

Roque further teaches to control the transmission of an acknowledgement of the failure message (Figs. 6-9, SGP_DOWN, SGPDOWN-ACK, ASPDOWN, ASP_DOWN_ACK, paragraphs [0331], and [0355]). However, Roque might not clearly disclose to control the delayed acknowledgement of the failure message with the delay that can be set with a predeterminable time period (i.e., the data messages pending on the association are received at that remote process before the acknowledgment of the failure message), although the technique to delay an acknowledgement is old and well known in art, for example, Transmission Control Protocol (TCP)/Internet Protocol (IP) is used the delayed acknowledgement so that the data messages pending are completely received to avoid re-transmission of data messages and wasting the available bandwidth.

Again, these features are old and well known in the art as described below in two of the many class 379 (telephony class) references. In the same field of endeavor, Suzuki discloses an integrated management method used in a gateway system for adding, removing, or replacing a signaling gateway in the system (See Suzuki – Fig. 1, Signaling Gateway System, par [0002]), and an alternate path is used when a fault occurs in a signal path (See Suzuki - Figs. 4-7, par [0051]). Suzuki further teaches that there is a need to provide a gateway system and an integrated management method to overcome problems in adding, removing, or replacing the gateway (See Suzuki – paragraphs [0004]-[0010]).

Thompson teaches when receiving a failure message (Thompson – Fig. 10, par [0019], lines 5-17, i.e., informs "failure message" that no longer going to monitor a communication channel), to send an explicit, delayed acknowledgement messages to control when to send an acknowledgement message (Thompson – Fig. 10, 610 Queue Manager, 620 Packet Controller, par [0019] lines 18-24, i.e., delay issuance of the acknowledgment message until the contents (at the time the channel "failure" message was received) of the queue for the relevant channel have been transmitted), and it is old and well known in the art that the explicit delay **is inherently** "a predeterminable time period" by design. Thompson further teaches there is a need for a traffic diversion, and that is to set up an alternate path when a failure occurs (Thompson – Fig. 10, 1-4 Queues, 610 Queue Manager, par [0020], i.e., queue manager is able to retrieve data packets and redistributes them on to another queue to ensure that the process entity will continue to receive any data packets destined to it).

In addition, if it is still not clear that the protocol teaches to verify during a timer period that data messages previously sent which have been received, Venkatesh teaches to verify during a timer period that data messages previously sent which have been received (See Venkatesh – Fig. 5, step 114 Receive ACK?, step 116 Timeout? No, step 124 Complete, step 116 Timeout? Yes, step 118Retry, paragraph [0028]).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to incorporate the alternate path, the explicit delayed acknowledgement message, and to verify during a timer period that data messages previously sent which have been received, as taught by Suzuki, Thompson, and Venkatesh into the method and system of Rogue in order to enhance the transmission of data messages via an alternate path, and the acknowledgement step when a failure occurs. Since, Rogue teaches to use an alternate signaling gateway when a failure occurs, and thus adding the alternate path, the explicit delayed acknowledgement message, and to verify during a timer period that data messages previously sent which have been received is to apply a known technique to a known device ready for improvement to yield predictable results (see KSR – MPEP 2143). One having ordinary skill in the art would have been motivated to make such a modification to provide a gateway system and an integrated management method to overcome problems in adding, removing, or replacing the gateway, and a traffic diversion that is to set up an alternate path when a failure occurs, as per the teachings of Suzuki, Thompson, and Venkatesh.

Regarding claims 4-5, Roque teaches a method wherein the transmission and acknowledgment of a heartbeat message (par [0059], i.e., heartbeat message SIGTRAN UA standard protocol runs over a transport layer) and wherein the controlling comprises sending the acknowledgement of the failure message on the data stream used for the data messages (Fig. 6, par [0355]).

However, Roque does not specifically disclose the delay. But, Thompson teaches an explicit delayed acknowledgement messages (Thompson – Fig. 10, 610 Queue Manager, 620 Packet Controller, par [0019] lines 18-24, i.e., delay issuance of the acknowledgment message until the contents (at the time the channel "failure" message was received) of the queue for the relevant channel have been transmitted). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the delay time by using the time for transmission and acknowledgement of a heartbeat message.

Regarding claims 6-8, Roque teaches a method comprising testing the association to determine if the association is active and, if not, dropping messages queued for the association (par [0058], i.e., leans on the status of the SCTP-association); a plurality of associations between a plurality of local processes and a plurality of remote processes (Figs. 3-4, par [0065], and par [0071]); and informing other local processes of the fault so that such other local processes can avoid involving the failed association in traffic diversion procedures initiated by them (Figs. 13-14, par

[0400},i.e., received "SG_INACTIVE/SG_DOWN", then such ASP will send a notification to all Signaling Gateway Processes (SGPs) connected to it).

Regarding claims 9-12 and 14-15, Roque teaches a method comprises determining the messages are TCAP messages "stateful" (Fig. 2, 101 Message Transfer Part (MTP), MTP3, MTP2, par [0025], and par [0136]) and/or non TCAP messages "stateless" (Fig. 2, 121 Internet Protocol (IP), Stream Control Transmission Protocol (SCTP), par [0009], i.e., SCCP, MAP, and paragraphs [0025], [0136]); and further comprising determining whether pending messages form part of a stateful or stateless transaction, and, if so, finding an alternative local process to provide an alternative path to the same remote process or to another remote process (par [0025], i.e., a set of User Adaptation (UA) layer "one per type of protocol to be transported", and par [0056] –[0057]), wherein the first processing entity is a signaling gateway (Fig. 5, 50 "SGP"), the local processes being signaling gateway processes having a common point code or set of point codes (Fig. 2, MTP3, Fig. 5, par [0009], i.e., MTP3 unique address for a node, and par [0016]), and wherein the second processing entity is an application server (Fig. 5, 60 "ASP"), the remote processes being application server processes having a common routing key (Fig. 5, par [0037 and par[0041], i.e., SIGTRAN routing key "RK").

Rogue teaches Signaling System 7 (SS7) and the message routing Message Transfer Part (MTP) as described above. However, Rogue might not disclose the detail that the MTP routes strictly on Point Codes, although the use of point codes is old and

well known in SS7 system. Suzuki teaches the routing label with destination point code (DPC) and originating point code (OPC) (See Suzuki – Fig. 3, DPC, OPC, par [0047]). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to incorporate the detail such as point codes of the routing label.

Regarding claim 13, Roque, Suzuki and Thompson disclose everything claimed as applied above (see claims 1, 9-12, and 14-15). Suzuki teaches a method and system of SS7 network with a Signaling Gateway (Suzuki - Fig. 1) that when a failure is occurred, find an alternate path and modifying the routing table (Fig. 5, S14-S20, par [0060], i.e., detects a failure and determines destinations based on SLS, par [0063], i.e., creates the routing table and sends it to the SGPs).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about modifying the routing table, as taught by Suzuki, into the method of Roque and Thompson in order to enhance the transport of the Switched Circuit signaling messages.

Regarding claim 16, Roque teaches a method wherein the message indicating the fault is an ASP_INACTIVE or ASP_DOWN message (Fig. 6, 30.1, ASP-DOWN/ ASPIA “inactive”, and ASPDOWN-ACK/ ASPIA-ACK) and the acknowledgement being respectively an ASP_INACTIVE_ACK message or an ASP_DOWN_ACK message (Fig. 6, 30.1, par [0047]-[0048], par [0052]-[0053], and [0330]-[0331]).

Regarding claims 17-19, Roque teaches a method comprising the initiating of a switch back procedure to include a new association linking a local process with a remote process (Figs. 15-16, par [0417]-[0423], i.e., ASP to change the status of a SG to "SG_ACTIVE"); informing other local processes of the new association so that such other local processes can begin involving the new association (Figs. 15-16, par [0417], i.e., send notification "SG active" to all SGPs); and wherein the associations are SCTP associations (Fig. 2, 109, Fig. 5, 129, par [0071] and par [0126], i.e., connections are made using SCTP as transport protocol "called in SIGTRAN's terminology SCTP-associations").

Regarding claims 20-21, Roque teaches a signaling gateway comprising a plurality of local processes that are controlled using a computer program code element (par [0068], i.e., logical entity that performs in both SG "signaling gateway" and AS "application server").

Regarding claims 22 and 29, Roque teaches a method of recovering failure in a distributed signaling gateway maintaining a plurality of associations between signaling gateway processes of said distributed signaling gateway and application server processes of an application server (Fig. 1, 121-122 "Application Servers (ASs)", Fig. 1, 131-132 "Signaling Gateways (SGs)", par [0125]), said method comprising the steps of:

initiating a traffic diversion in response to a failure message to set up an alternate path between said signaling gateway processes and said application server processes in ease of fault affecting an association (Fig. 12 “SGPIA or SGPDOWN is received”, Figs. 13-14, par [0350]-[0354], i.e., either use an alternate SGP that is active or start an activation procedure) between a first application server process and a first signaling gateway process (Figs. 13-14, ASP-X “first application server process”, SGP-C “first signaling gateway process”), said initiating comprising testing of a data type value of the queued messages (Fig. 5, paragraphs [0164]-[0168], i.e., the value of Traffic Handling Mode (THM) indicating one value type among many).

initiating a switch back to include a new association linking the first signaling gateway process and the first application server process (Fig. 15, ASP-X “first application server process”, SGP-C “first signaling gateway process”, Fig. 16, par [0417]-[0423], i.e., ASP to change the status of a SG to “SG_ACTIVE”, each application server process being connected to each signaling gateway process through the association (Fig. 5, 50 Signaling Gateway Process (SGP), 60 Application Server Process (ASP), par [0016]), wherein the association comprises a transport connection between respective signaling gateway process and application server process (Fig. 5, par [0016], paragraphs [0056]-[0058],i.e., SCTP-association. and par [0126], i.e., transport connections using a transport protocol), the initiating a switch back comprising: verifying by the first signaling gateway process during a timer period that messages on diversion paths associated with the other signaling gateway processes have been received by application server processes (paragraphs [0079]-[0081], i.e.,

transport protocol such as SCTP, TCP or UDP are **inherited** data verification during a timer period, for example, TCP using handshaking messages such as Acknowledgement (ACK) message to verify that data have been received properly and the ACK message must be received by the sender within a timer period (i.e., T1 timer programmable in the protocol), otherwise re-transmission of the data is needed, this feature in TCP/IP protocol is old and well known in the art, also see paragraph [0096], i.e., the protocol control means for the reception of acknowledgement messages about the state and traffic messages **previously sent**); and controlling an active message acknowledgement by the first signaling gateway process (Figs. 13-15, SGPIA / SGPDOWN-ACK, SGPAC, SGP-C "first signaling gateway process"), based on said verifying within the timer period (paragraphs [0079]-[0081], and [0096] for verifying within a timer period).

according to the change of status of any association, updating routing tables capable of routing data messages received by said signaling gateway processes to its destined application server processes (Figs. 6-12, par [0317]-[0321], i.e., SGP-A wants to actively serve for traffic messages, then ASP-X will update the status of SGP, as well as the routing information elements (RIE)); and

distributing sequentially messages from said signaling gateway to said plurality of application server processes according to said routing tables, and said routing table are SLS routing table (Figs. 6-12, par [0350]-[0354]).

However, Roque might not specifically disclose in detail about updating the SLS routing tables and distributing sequentially messages of the failed signaling gateway.

In the same field of endeavor, Suzuki teaches a method and system of SS7 network with a Signaling Gateway (Suzuki - Fig. 1) that when a failure is occurred, updates the routing table (Suzuki - Fig. 5, S14-S20, par [0060], i.e., detects a failure and determines destinations based on SLS, par [0063], i.e., creates the routing table and sends it to the SGPs), and distributing sequentially messages of the failed signaling gateway (Suzuki - Fig.1, Fig. 5, par [0064], i.e., guarantee of an order of sending signal since the SLS information included in the signals is not changed). In addition, if it is still not clear that the protocol teaches to verify during a timer period that data messages previously sent which have been received, Venkatesh teaches to verify during a timer period that data messages previously sent which have been received (See Venkatesh – Fig. 5, step 114 Receive ACK?, step 116 Timeout? No, step 124 Complete, step 116 Timeout? Yes, step 118Retry, paragraph [0028]).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about updating the SLS routing table and distributing sequentially messages and to verify during a timer period that data messages previously sent which have been received, as taught by Suzuki and Venkatesh, into the method of Roque and Thompson in order to enhance the transport of the Switched Circuit signaling messages.

Regarding claims 23-25, and 28, Roque teaches a method wherein said step of initiating a traffic diversion and switch back further comprising the steps of:

starting a protection timer (par [0061] – lines 2-5, i.e., heartbeat time-out);

queuing messages destined for the application server process of the new association (Fig. 12, par [0385], i.e., stop signaling traffic messages);

informing other signaling gateway processes (Fig. 13 - paragraph [0398], i.e., sending status notification to all SGPs connected to it);

finding alternate path/active signaling gateway to forward/divert subsequent stateless/non-TCAP messages "stateless" (Fig. 2, 121 Internet Protocol (IP), Stream Control Transmission Protocol (SCTP), par [0009], i.e., SCCP, MAP, and paragraphs [0025], [0136]) or stateful/TCAP messages "stateful" (Fig. 2, 101 Message Transfer Part (MTP), MTP3, MTP2, par [0025], and par [0136]) processing messages onto another application server process through another association or through an alternate signaling gateway process still associated with the same application server process (Fig. 12 "SGPIA or SGPDOWN is received", par [0350]-[0354], i.e., either use an alternate SGP that is active or start an activation procedure), and TCAP and non-TCAP messages identified by transaction identification numbers (par [0077]-[0078], i.e., message class "MC" and message identifier "MI"); and

re-computing said routing tables (par [0404]-[0407], i.e., additional routing information element);

Roque does not explicitly disclose controlling the acknowledgement. However, Thompson teaches when received a failure message (Thompson – Fig. 10, par [0019], lines 5-17, i.e., informs "failure message" that no longer going to monitor a communication channel) and then to send an explicit, delayed acknowledgement messages to control when to send an acknowledgement message (Thompson – Fig. 10, 610 Queue Manager, 620 Packet Controller, par [0019] lines 18-24, i.e., delay issuance of the acknowledgment message until the contents (at the time the channel "failure" message was received) of the queue for the relevant channel have been transmitted). Also, Thompson teaches a traffic diversion to set up an alternate path when a failure occurs (Thompson – Fig. 10, 1-4 Queues, 610 Queue Manager, par [0020], i.e., queue manager is able to retrieve data packets and redistributes them on to another queue to ensure that the process entity will continue to receive any data packets destined to it). Suzuki teaches when a failure is occurred, updates the routing table (Fig. 5, S14-S20, par [0060], i.e., detects a failure and determines destinations based on SLS, par [0063], i.e., creates the routing table and sends it to the SGPs).

It would have been obvious to a person of ordinary in the art at the time of the invention was made to apply a known technique to a known device (i.e., using delayed acknowledgement message, stateless and stateful processing messages, and updating the routing table in routing signaling messages) ready for improvement to yield predictable results (see KSR – MPEP 2143). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about controlling the acknowledgement and updating the routing table, as taught

by Thompson and Suzuki, into the method of Roque in order to enhance the transport of the Switched Circuit signaling messages.

Regarding claims 26-27, Roque teaches the method wherein said signaling gateway is coupled to a signaling end point across a signaling system No. 7 network, and wherein each signaling gateway process of said signaling gateway is coupled to each application server process across an internet protocol network (Figs. 1-4, par [0004]-[0011], i.e., PSTN, ISDN, IP networks with SGPs and ASPs with several protocols via SS7 (e.g., Q.931, MTP, MTP3, etc.)).

Response to Arguments

5. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI N. NGUYEN whose telephone number is (571)270-3141. The examiner can normally be reached on Monday - Thursday 6:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad F. Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. N. N./
Examiner, Art Unit 2614

/Ahmad F Matar/
Supervisory Patent Examiner, Art Unit 2614